

Form PTO-1449
(REV. 7-80)U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

ENZ-1 (Cont.) Div. II 130,097

APPLICANT

David C. Ward, et al.

FILING DATE

12/7/87

GROUP

Information Disclosure Statement

Filed By Applicant
(Use several sheets if necessary)

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
<i>Jre</i>	AA	3 3 2 8 3 8 9	6/27/67	Shimizu et al.	260	211.5	
	AB	3 3 3 7 5 3 0	8/22/67	Hanze	260	211.5	
	AC	3 3 3 8 8 8 2	8/29/67	Wechter	260	211.5	
	AD	3 8 0 4 8 2 6	4/10/74	Schelt et al.	260	211.5R	
	AE	3 8 9 3 9 9 8	7/3/75	John A. Secrist III, et al.	260	211.5R	
	AF	3 9 1 5 9 5 8	10/28/75	Shuman et al.	260	211.5R	
	AG	3 9 1 7 5 8 3	11/4/75	Meyer et al.	260	211.5R	
	AH	3 9 6 0 8 4 0	6/1/76	John A. Secrist III et al.	260	211.5R	
	AI	3 9 6 8 1 0 1	7/6/76	Christensen et al.	260	211.5R	
	AJ	4 0 0 8 3 6 3	2/15/77	Luciano Re et al.	536	28	
	AK	4 0 3 8 4 8 0	7/26/77	Robins et al.	536	27	

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	AL	2 6 1 8 4 1 9	11/4/76	German Offenlegungsschrift	2		X
	AM	2 6 1 8 5 1 1	11/4/76	German Offenlegungsschrift	2		X
	AN	3 0 4 5 3 7 5	7/1/82	German Offenlegungsschrift	3		X
<i>Jre</i>	AO	2 0 1 9 4 0 8	10/31/79	United Kingdom Pat. Appln.	3		
	AP	2 0 2 6 6 9 0	2/6/80	United Kingdom Pat. Appln.	3		

Other Documents (Including Author, Title, Date, Pertinent Pages, Etc.)

Jre
 AR J. G. J. Bauman et al., "A New Method for Fluorescence Microscopical Localization of Specific DNA Sequences by In Situ Hybridization of Fluorochrome-Labelled RNA", Exp. Cell Res., 128, pp. 485-90 (1980) ["Bauman I"]

AS
 AT J. G. J. Bauman et al., "Rapid and High Resolution Detection of in situ Hybridisation to Polytene Chromosomes Using Fluorochrome-Labeled RNA," Chromosoma (Berl.) 84, pp. 1-18 (1981) ["Bauman II"]

EXAMINER

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AA	4 0 4 8 3 0 7	9/13/77	Yokota et al.	424	180	
AB	4 0 8 6 4 1 7	4/25/78	Ishida et al.	536	29	
AC	4 0 8 8 6 3 9	5/9/78	Zappelli et al.	260	112.5R	
AD	4 0 9 6 3 2 4	6/20/78	Kelly et al.	536	23	
AE	4 1 3 4 7 9 2	1/16/79	Boguslaski et al.	195	99	
AF	4 1 5 1 3 4 9	4/24/79	Traeger et al.	536	28	
AG	4 1 7 1 4 3 2	10/16/79	Carrico et al.	536	26	
AH	4 2 1 3 8 9 3	7/22/80	Carrico et al.	260	112.5	
AI	4 2 2 8 2 3 7	10/14/80	Hevey et al.	435	7	
AJ	4 2 3 0 6 9 8	10/28/80	Bobek et al.	424	180	
AK	4 2 3 0 7 9 7	10/28/80	Boguslaski, et al.	435	7	

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AL	2 0 3 4 3 2 3	6/4/80	United Kingdom Pat. Appln.	3		
AM	2 0 4 1 9 2 2	9/17/80	United Kingdom Pat. Appln.	3		
AN	2 0 4 5 2 3 9	10/29/80	United Kingdom Pat. Appln.	3		
AO	2 1 2 5 9 6 4	3/14/84	United Kingdom Pat. Appln.	3		
AP	0 7 0 6 8 5	1/26/83	EPO Patent Application	3		

Other Documents (Including Author, Title, Date, Pertinent Pages, Etc.)

<i>JKC</i>	AR	E. A. Bayer and M. Wilchek, "The Use of the Avidin-Biotin Complex as a Tool in Molecular Biology," in <u>Methods of Biochemical Analysis</u> , 26, pp. 1-45 (1980)
<i>JKC</i>	AS	D. Bergstrom and M. Ogawa, "C-5 Substituted Pyrimidine Nucleosides. 2. Synthesis Via Olefin Coupling To Organopalladium Intermediates Derived From Uridine and 2'-Deoxyuridine, <u>J. Am. Chem. Soc.</u> , 100, pp. 8106-8112 (1978) ["Bergstrom I"]

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AA	4 2 4 7 5 4 4	1/27/81	Bergstrom et al.	424	180	
AB						
AC	4 2 6 1 8 9 3	4/14/81	Boguslaski et al.	260	326N	
AD	4 2 6 7 1 7 1	5/12/81	Bergstrom et al.	424	180	
AE	4 3 0 2 2 0 4	11/24/81	Wahl et al.	23	230.3	
AF	4 3 1 8 9 8 0	3/9/82	Boguslaski et al.	435	7	
AG	4 3 1 8 9 8 1	3/9/82	Burd et al.	435	7	
AH	4 3 1 8 9 8 2	3/9/82	Hornby et al.	435	7	
AI	4 3 5 5 1 6 5	10/19/82	Boguslaski et al.	544	237	
JRC	4 3 5 8 5 3 5	11/9/82	Falkow et al.	435	5	
AK	4 3 6 3 7 5 9	12/14/82	Boguslaski et al.	260	112.7	

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO
AL	7 0 6 8 7	1/26/83	EPO-Patent-Application	3			
AM	1 5 4 8 7 4 1	7/18/79	Great Britain-Patent	2	33/16		
AN	1 5 5 2 6 0 7	9/19/79	Great Britain-Patent	2	33/16		
AO	4 3 2 4 1 9 1	10/18/43	Japanese Patent Application	16E	611.2		X
AP	5 8 6 2 1 9 4	4/13/83	Japanese Patent Application	3007H	19/06		X

Other Documents (Including Author, Title, Date, Pertinent Pages, Etc.)

JRC	AR	D. Bergstrom and J. L. Ruth, "Properties of C-5 Mercurated Pyrimidine Nucleosides," <u>J. Carbohydrates, Nucleotides and Nucleosides</u> , 4, pp. 257-289 (1977) ["Bergstrom II"]
JRC	AS	C. F. Bigge et al., "Palladium-Catalyzed Coupling Reactions of Uracil Nucleosides and Nucleotides," <u>J. Am. Chem. Soc.</u> , 102, pp. 2033-2038 (1980)
JRC	AT	C. Brandon et al., "Structure of a New Pyrimidine from <u>Bacillus Subtilis</u> Phage SP-15 Nucleic Acid", <u>Nature New Biology</u> , 239, pp. 70-71 (1972)

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
AA		4 3 7 4 9 2 5	2/22/83	Litman et al.	435	7	
AB		4 3 8 0 5 8 0	4/19/83	Boguslaski et al.	435	7	
AC		4 3 8 3 0 3 1	5/10/83	Boguslaski et al.	435	7	
AD		4 4 4 6 2 3 1	5/1/84	Self	435	7	
AE		4 4 6 9 8 6 3	9/4/84	Ts'o et al.	536	27	
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						YES	NO
AL	8 3 0 2 2 7 6	7/7/83	PCT Patent Application	3C07H	19/20	X**	
AM	8 3 0 2 2 7 7	7/7/83	PCT Patent Application	3C07H	21/00	X**	
AN	8 3 0 2 2 8 6	7/7/83	PCT Patent Application	3C12Q	1/68	X**	
AO							
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JR AR T. R. Broker et al., "Electron Microscopic Visualization Of tRNA Genes with Ferritin-Avidin: Biotin Labels," Nucl. Acids Res., 5, pp. 363-83 (1978)

JR AS R. M. K. Dale et al., "Direct Covalent Mercuration of Nucleotides and Polynucleotides," Biochemistry, 14, pp. 2447-2457 (1975) ("Dale I")

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* United States patent application

**Abstract only.

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<i>Jhe</i>	AR	R. M. K. Dale et al., "The Synthesis and Enzymatic Polymerization of Nucleotides Containing Mercury: Potential Tools for Nucleic Acid Sequencing and Structural Analysis, Proc. Natl. Acad. Sci. USA, 70, pp. 2238-2242 (1973) ["Dale II"]
	AS	W. S. Dallas and S. Falkow, "Molecular and Genetic Analysis of a DNA Sequence Encoding for Enterotoxin Synthesis in Escherichia Coli," Thirteenth Joint Conference on Cholera, The U.S.-Japan Cooperative Medical Science Program (1979) ["Dallas I"]
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AR	W. S. Dallas et al., "The Characterization of an <u>Escherichia Coli</u> Plasmid Determinant That Encodes for the Production of a Heat-Labile Enterotoxin," <u>Plasmids of Medical Environmental and Commercial Importance</u> , K. N. Timmis and A. Puhler, editors, Elsevier/North-Holland Biomedical Press (1979) ["Dallas II"]
AS	D. J. Eckermann and R. H. Symons, "Sequence at the Site of Attachment of an Affinity-Label Derivative of Puromycin on 23-S Ribosomal RNA of <u>Escherichia coli</u> Ribosomes," <u>Eur. J. Biochem.</u> , 82, pp. 225-34 (1978)
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<i>Jre</i>	AR	M. Ya. Feldman, <u>Reactions of Nucleic Acids and Nucleoproteins With Formaldehyde</u> , ____ Ed. (19____)
	AS	H. G. Gratzner, "Monoclonal Antibody to 5-Bromo- and 5-Iododeoxyuridine: A New Reagent for Detection of DNA Replication," <u>Science</u> , 218, pp. 474-475 (1982)
	AT	M. Grunstein and D. Hogness, "Colony Hybridization: A Method for the Isolation of Cloned DNAs That Contain a Specific Gene", <u>Proc. Natl. Acad. Sci. USA</u> , 72, pp. 3961-65 (1975)

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<i>JRC</i>	AR	J. L. Guesdon et al., "The Use of Avidin-Biotin Interaction In Immunoenzymatic Techniques", <u>J. Histochem. and Cytochem.</u> 27, pp. 1131-39 (1979)
<i>JRC</i>	AS	H. Hayashi and K. Nakanishi, "Synthesis and Absolute Configuration of (+)-5-(4',5'-Dihydroxypentyl)uracil from <u>Bacillus Subtilis</u> Phage SP-15 Deoxyribonucleic Acid," <u>J. Am. Chem. Soc.</u> , 95, pp. 4081-4083 (1973) [Hayashi I]
<i>JRC</i>	AT	H. Hayashi et al. "Structure and Synthesis of Dihydroxypentyl-uracil from Bacteriophage SP-15 Deoxyribonucleic Acid," <u>J. Am. Chem. Soc.</u> , 95, pp. 8749-8757 (1973) [Hayashi II]

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	AR	K. Hofmann et al., "Iminobiotin Affinity Columns And Their Application To Retrieval Of Streptavidin", Proc. Natl. Acad. Sci. USA, 77, pp. 4666-68 (1980)
	AS	E. S. Huang and J. S. Pagano, "Nucleic Acid Hybridization Technology and Detection of Proviral Genomes," Methods Virol, 6, pp. 457-497 (1977)
	AT	A. M. Jeffrey et al., "Benzo[a] pyrene-Nucleic Acid Derivative Found In Vivo: Structure of a Benzo[a] pyrenetetrahydrodiol Epoxide-Guanosine Adduct," J. Am. Chem. Soc., 98, pp. 5714-5715 (1976)

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- R.-G. Kallen et al., "The Occurrence of a New Pyrimidine Base Replacing Thymine in a Bacteriophage DNA: 5-Hydroxymethyl Uracil," J. Mol. Biol. 5, pp. 248-250 (1962)
- D. E. Kennel, "Principles And Practicss of Nucleic Acid Hybridization" Pro. Nucl. Acid Res., 11, 259-301 (1971)
- M. Kuroeda et al., "Alkylation of Polyguanylic Acid at the 2-Amino Group and Phosphate by the Potent Mutagen (\pm)-7B, 8a-Dihydroxy-9B,10B epoxy -7,8,9,10-tetrahydrobenzo[a]pyrene," J. Am. Chem. Soc., 98, pp. 6720-6722 (1976)

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AR	T. T. Kuo et al., "5-Methylcytosine Replacing Cytosine in the Deoxyribonucleic Acid of a Bacteriophage for Xanthomonas oryzae." <u>J. Mol. Biol.</u> , 34, pp. 373-375 (1968)
AS	P. R. Langer et al., "Enzymatic Synthesis of Biotin-Labeled Polynucleotides: Novel Nucleic Acid Affinity Probes", <u>Proc. Natl. Acad. Sci. USA</u> , 78, pp. 6633-37 (1981) ("Langer I")

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Other Documents (Including Author, Title, Date, Pertinent Pages, Etc.)

<i>JRC</i>	AR	P. R. Langer and D. C. Ward, "A Rapid and Sensitive Immunological Method For In Situ Gene Mapping," in <u>Developmental Biology Using Purified Genes</u> , ed. D. D. Brown, Academic Press, pp. 647-58 (1981) ["Langer II"]
<i>JRC</i>	AT	P.R. Langer and D. C. Ward, Abstract 1153: "A Rapid and Sensitive Immunological Method For In Situ Gene Mapping," in <u>Journal of Supramolecular Structure and Cellular Biology</u> , ed. Alan R. Liss, Inc. (1981) ["Langer III"]

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AL							
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AR	I. R. Lehman and E. A. Pratt, "On the Structure of the Glucosylated Hydroxymethylcytosine Nucleotides of Coliphages T2, T 4 and T6," <u>J. Biol. Chem.</u> 235, pp. 3254-3259 (1960)	
	E. T. Maggio (ed.), <u>Enzyme-Immunoassay</u> (1980)	
AT	Manning et al., "A Method for Gene Enrichment Based on the Avdin-Biotin Interaction. Application to the Drosophila Ribosomal RNA Genes," <u>Biochemistry</u> , 16, pp. 1364-1370 (1977) [Manning I]	

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